

### 3.4 Solving Equations with Variables on Both Sides

#### STEPS

- ① COMBINE LIKE TERMS
- ② MOVE VARIABLES TO ONE SIDE (+ or -)
- ③ MOVE NUMBERS TO ~~THE~~ <sup>THE</sup> SIDE (+ or -)  
OPPOSITE the VARIABLE
- ④ MOVE COEFFICIENTS (x or ÷)

Ex 1  $8x + 3x - 7 = 4x + 21$

$$\begin{array}{r} 11x - 7 = 4x + 21 \\ -4x \quad -4x \\ \hline 7x - 7 = 21 \\ +7 \quad +7 \\ \hline 7x = 28 \\ \frac{7}{7} \quad \frac{7}{7} \\ \hline x = 4 \end{array}$$

Homework:  
p. 157  
#18-44 even

Ex 2  $24 - 6r = 6(4 - r)$

$$\begin{array}{r} 24 - 6r = 24 - 6r \\ +6r \quad +6r \\ \hline 24 = 24 \end{array}$$

all real numbers

Identity: an equation that is true for all values of the variable.

Ex 3  $-2(6 - 10n) = 10(2n - 6)$

$$\begin{array}{r} -12 + 20n = 20n - 60 \\ -20n \quad -20n \\ \hline -12 \neq -60 \end{array}$$

No Solution